



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/860,763	09/09/1998	ISKANDER M. TOKMULIN	P-9701-ISK	9367

7590 11/21/2002

LACKENBACH SIEGEL MARZULLO
ORONSON & GREENSPAN
ONE CHASE ROAD
PENTHOUSE SUITE
SCARSDALE, NY 10583

EXAMINER

ZERVIGON, RUDY

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 11/21/2002

26

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/860,763

Applicant(s)

TOKMULIN ET AL.

Examiner

Rudy Zervigon

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3 and 5-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,3 and 5-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in Russia on January 13, 1995. A claim for priority under 35 U.S.C. 119(a)-(d) cannot be based on said application, since the United States application was filed more than twelve months thereafter. Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in International Bureau on April 11, 1995. The decision on petition made or record on February 23, 1999 establishes the date of filing under 35 U.S.C. 102(e) and 371(c) as 09 September 1998.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 6 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 6 requires "proximity to an open". Correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1763

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject-matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 3, and 5-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siniaguine (USPat. 6,139,678) in view of Ahonen (USPat. 5,308,461) and Siniaguine (USPat. 6,168,697). Siniaguine (USPat. 6,139,678) teaches a device (Figure 7) for treating wafers (134, Figure 2) the device includes:

- i. a plasma jet (120; Fig.7) for treating the wafers, where the plasma jet generator is mounted on an adjustable height base (column 4, lines 3-10)
- ii. a set of holders (130) having a horizontal platform for wafers to be treated in the plasma jet (column 5, lines 42-67)
- iii. the plasma jet and wafer holders being displaced with respect to each other (Figure 1; column 5, lines 42-67) and may be in or out of contact with each other;
- iv. the plasma jet generator being located such that a plasma jet is directed upwardly (Figure 1, 7) in respect of a plane of the horizontal platforms of the wafer holders
- v. a manipulator (750; Figure 7; column 9, lines 1-10)
- vi. storage devices (744; Figure 7; column 9, lines 1-10)
- vii. a closed chamber (column 8, lines 58-67) having a gas exchange system (column 4, lines 49-50)
- viii. a door (column 8, lines 64-67) having a movable shutter (hinge), where the manipulator is located in contact with the storage devices directly and with the wafer holder indirectly through the chamber door.

Siniaguine (USPat. 6,139,678) does not teach:

Art Unit: 1763

- ix. wafer holders that have a drive for effecting angular displacement thereof such that each ~~of the holders being made in the form of a horizontal platform mounted for rotation about~~ an axis passing through a geometric center thereof and perpendicular to a plane of the platform
- x. cooling means associated with each horizontal platform in fluid communication with a gas supply means and located such that the resulting gas flows permit the positioning of the platform near a holder
- xi. a window for transporting wafers into and out of the chamber
- xii. The wafer holder is provided with a limiter mounted at an angle α other than 90°

Ahonen (USPat. 5,308,461) teaches a similar plasma deposition device (column 2, lines 18-25) including:

- xiii. wafer holders (60, 62; Figure 1) that have a drive for effecting angular displacement thereof (column 3, lines 23-45; Figure 2) such that each of the holders being made in the form of a horizontal platform (Figure 1) mounted for rotation about an axis passing through a geometric center thereof and perpendicular to a plane of the platform (Figure 2; "Direction of Rotation of Holder")

Siniaguine (USPat. 6,168,697) teaches a similar plasma jet deposition apparatus (Figure 1; column 3, lines 46-67) including a "non-contact wafer holder" discussed by Siniaguine (USPat. 6,139,678; column 3, lines 46-48; USPat. 6,168,697; column 4, lines 3-30) including:

- xiv. gas and cooling means associated with each horizontal platform (130L; Figure 1-3; column 4, lines 7-23) in fluid communication with a gas supply means (column 4, lines 31-37) and located such that the resulting gas flows permit the positioning of the platform

Art Unit: 1763

near a holder – that the claimed apparatus configuration effects “improved cooling of individual area over the wafer surfaces while avoiding the need to provide additional cooling of the plasma generator due to natural convection of the hot gasses” is a statement of intended use of an apparatus. Because Siniaguine’s (USPat. 6,168,697) holder is structurally identical to the wafer holders of the present application, Siniaguine’s (USPat. 6,168,697) holder provides the intended use.

- a. The wafer holder having a plurality of vortex chambers (130G.1-4; Figure 2; column 4, lines 8-30) including four tangential channels (not shown, inherent)
- b. The wafer holder is provided with a limiter (170; Figure 1) mounted at an angle $\alpha = 90^\circ$

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Siniaguine (USPat. 6,139,678) to replace his wafer holder with Siniaguine (USPat. 6,168,697) wafer holder and rotate the wafer holder as taught by Ahonen (USPat. 5,308,461).

Motivation for Siniaguine (USPat. 6,139,678) to replace his wafer holder with Siniaguine (USPat. 6,168,697) wafer holder is provided by Siniaguine (USPat. 6,168,697) in order to prevent the plasma from getting between the wafer and the holder (column 4, lines 17-23).

Motivation for Siniaguine (USPat. 6,139,678) to rotate the wafer holder as taught by Ahonen (USPat. 5,308,461) is for uniform depositions (column 2, lines 30-39).

Art Unit: 1763

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Siniaguine (USPat. 6,139,678) to replace his chamber door with a window for access to the process chamber.

Motivation for Siniaguine (USPat. 6,139,678) to replace his chamber door with a window for access to the process chamber is an alternate and equivalent means for transporting wafers into and out of the process chamber.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Siniaguine (USPat. 6,168,697) to change the mounting angle $\alpha = 90^\circ$ between the wafer holder's horizontal platform and the limiter (170; Figure 1) to an angle α other than 90° .

Motivation for Siniaguine (USPat. 6,168,697) to change the mounting angle $\alpha = 90^\circ$ between the wafer holder's horizontal platform and the limiter (170; Figure 1) to an angle α other than 90° is for optimization of the apparatus performance.

It is well known that optimization of apparatus parameters is within the level of ordinary skill in the art. See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), MPEP 2144.05.

Response to Arguments

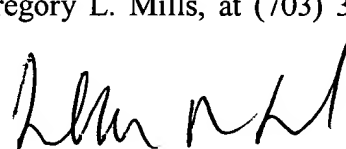
6. Applicant's arguments filed August 13, 2002 have been fully considered and they are persuasive.

7. All rejections under 35 USC 112, first paragraph are withdrawn. All claims pending are provided with sufficient enablement to satisfy 35 USC 112, first paragraph.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPat. 5,106,346; 6,467,297; 4,222,345; 5,077,888.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.



JEFFRIE R. LUND
PRIMARY EXAMINER